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(54) SMART CARD AND CARD READER EQUIPPED WITH FINGERPRINT SENSOR

SUMMARY

15 Disclosed is a smart card and a card reader equipped with a fingerprint sensor, which may identify user by using fingerprint of the user instead of using passwords by equipping the card reader with fingerprint sensing and reading functions. The card reader provides the smart card with fingerprint information, which is obtained by scanning fingerprint of the user and making the scanned fingerprint into data. The smart card compares the fingerprint information provided by
20 the card reader with fingerprint information stored in a fingerprint information storing unit of the smart card. If the fingerprint information stored in the fingerprint information storing unit corresponds to the fingerprint information provided by the card reader, it is possible for a main system to access to information stored in a memory unit of the smart card, thereby allowing the main system to identify the user rapidly and precisely without using passwords.

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REPRESENTATIVE DRAWING

Figure 1

SPECIFICATION

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a smart card and a card reader equipped with a fingerprint sensor
5 according to the present invention.

< Brief description of the code at an important part of a diagram >

- 10: Smart card
- 12: Fingerprint information storing unit
- 14: First control unit
- 16: Memory unit
- 20: Card Reader
- 22: Second control unit
- 24: Fingerprint sensor
- 15 30: Main system

DETAILED DESCRIPTION OF THE PRESENT INVENTION

20 OBJECTIVE OF THE PRESENT INVENTION

FIELD OF THE PRESENT INVENTION

The present invention relates to a smart card and a card reader. More particularly, the
25 present invention relates to a smart card and a card reader equipped with a fingerprint sensor, which may identify user by using fingerprint of the user instead of using passwords by equipping the card reader with fingerprint sensing and reading functions.

Generally, there are card readers which can identify people using smart cards at entrances of laboratory and secret place. If passwords are inputted to the card reader after inserting the smart

card into the card reader, the entrance is opened or locked by checking the passwords. Also in cases of using other credit cards, identification of user of the credit cards is being performed by checking passwords inputted into card-related devices.

- However, there are problems in that the user has to always remember the passwords for the
- 5 smart card and the credit cards, the user has to always input the passwords whenever the user wants to use the cards, and there could be huge economic loss of the user when the passwords are exposed to other person.

TECHNOLOGICAL SUBJECTS TO BE SOLVED BY THE INVENTION

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The present invention is directed to solve the problems. The object of the present invention is to provide a smart card and a card reader equipped with a fingerprint sensor, which may identify user by using fingerprint of the user instead of using passwords by equipping the card reader with fingerprint sensing and reading functions.

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CONFIGURATION OF THE INVENTION

In order to achieve the above-mentioned object, there is provided a smart card comprising:

a fingerprint information storing unit for storing fingerprint information, which is obtained by

20 scanning fingerprint of the user and making the scanned fingerprint into data, therein; a memory unit for storing information of card user required for card use; and a first control unit for controlling the fingerprint information storing unit and the memory unit, and a card reader comprising: a fingerprint sensor for sensing fingerprint of the user by scanning the fingerprint; and a second control unit for making the fingerprint information provided by the fingerprint sensor into data and

25 providing the first control unit with the fingerprint information in the form of data.

According to the present invention, the card reader provides the smart card with the fingerprint information, which is obtained by scanning fingerprint of the user. The smart card compares the fingerprint information provided by the card reader with fingerprint information stored in the fingerprint information storing unit of the smart card. If the fingerprint information

stored in the fingerprint information storing unit corresponds to the fingerprint information provided by the card reader, it is possible for main system to access to information stored in a memory unit of the smart card, thereby allowing the main system to identify the user rapidly and precisely without using passwords.

5 Hereinafter, a smart card and a card reader equipped with a fingerprint sensor according to a preferred embodiment of the present invention will be described with reference to the attached drawing.

Figure 1 illustrates a smart card and a card reader equipped with a fingerprint sensor according to a preferred embodiment of the present invention.

10 Figure 1 illustrates that the smart card 10 comprises [a fingerprint information storing unit 12] a memory unit 16 and a first control unit 14. Fingerprint information in the form of data is stored in the fingerprint information storing unit 12 and information of the user required for card use is stored in the memory unit 16. The first control unit 14 controls the fingerprint information storing unit 12 and the memory unit 16. The first control unit 14 compares the fingerprint information provided by a device outside with fingerprint information stored in the fingerprint information storing unit of the smart card. The first control unit 14 allows a main system 30 to access to the information stored in the memory unit 16, if the fingerprint information stored in the fingerprint information storing unit 12 corresponds to the fingerprint information provided by the device outside.

20 The user inputs the smart card 10 into a card reader 20 when using the smart card 10. The card reader 20 comprises a fingerprint sensor 24 and a second control unit 22. The fingerprint sensor 24 plays a role of a scanner to read fingerprint. The fingerprint sensor 24 reads fingerprint of the user and provides the second control unit 22 with the fingerprint of the user. The second control unit 22 converts fingerprint information into data by patterning the fingerprint information provided by the fingerprint sensor 24. The second control unit 22 provides the first control unit 14 of the smart card 10 with the converted fingerprint information.

In other words, the card reader 20 provides the first control unit 14 of the smart card 10 with the fingerprint information corresponding to fingerprint of the card user read by the fingerprint sensor 24. The first control unit 14 converts mode, only if the fingerprint information provided by

the second control unit 22 of the card reader 20 corresponds to the fingerprint information stored in the fingerprint information storing unit 12, in order to allow the main system 30 to access to information stored in the memory unit 16. That is, the fingerprint information is provided to the first control unit 14 of the smart card 10 by the second control unit 22 of the card reader 20. And,

5 the first control unit 14 allows the main system 30 to access to the memory unit 16.

The main system 30 proceeds with tasks such as banking and entrance control by reading data stored in the memory unit 16 of the smart card 10 corresponding to personal information of the card user.

10 EFFECT OF THE INVENTION

As can be seen from the foregoing, according to the present invention, the card reader provides the smart card with fingerprint information, which is obtained by scanning fingerprint of the card user and making the scanned fingerprint into data. The smart card compares fingerprint

15 information provided by the card reader with fingerprint information stored in the fingerprint information storing unit. If the fingerprint information stored in the fingerprint information storing unit corresponds to the fingerprint data provided by the card reader, it is possible for main system to access information stored in a memory unit of the smart card, thereby allowing the main system to identify the user rapidly and precisely without using passwords.

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WHAT IS CLAIMED IS:

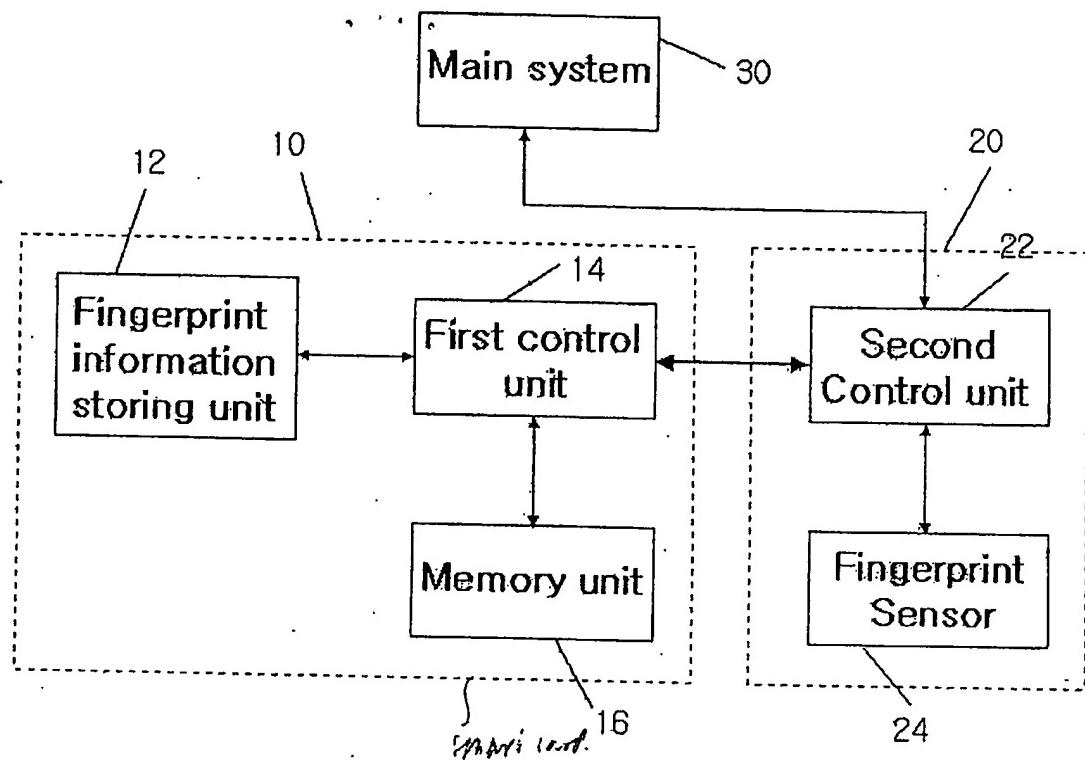
1. A smart card and a card reader equipped with a fingerprint sensor, wherein the smart card comprises:

5 a fingerprint information storing unit for storing fingerprint information, which is obtained by scanning fingerprint of the user and making the scanned fingerprint into data, therein; a memory unit for storing information of card user required for card use; and a first control unit for controlling the fingerprint information storing unit and the memory unit, and

wherein the card reader comprises:

10 a fingerprint sensor for sensing fingerprint of the card user by scanning the fingerprint; and a second control unit for making the fingerprint information provided by the fingerprint sensor into data and providing the first control unit with the fingerprint information in the form of data.

FIGURE 1



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